

Rube-Goldberg Machine

ECE 403 – Senior Design II

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Document prepared by

Tyson Morlock

Aaron Aaberg

Jared Gratzek

Dane Swartz

Introduction

The objective of our project is to create an entertaining and educational Rube Goldberg Machine that shows many different concepts from Electrical and Computer Engineering. The machine will be shown to high school students and underclassmen and show various topics, ranging from Physics and Calculus to Embedded Systems and Signal Processing. Concepts shown by the machine will be further expanded upon inside of an accompanying binder and/or informative presentation embedded inside of devices. The machine is small enough to fit in the back of a car for easy transport to local department events and is powered off of a common AC power.

Requirements

The below list includes points which will guide the project and act as rules which will aid in design decisions. The goal of the project will be to meet all listed requirements as best as possible to create the most excellent project.

- Multiple high quality instructional devices
- Include a wireless energy component
- Sturdy/ High-build quality
- Portable
- Modular (if possible)
- Eye-Appealing
- Quality over quantity of individual stages
- Entertaining, but educational
- Highlight interesting concepts of E.E.
- Organized
- Under budget
- Class-related
- Not limited by class topics
- It should be fun (for us and the observer)
- Include 2 old projects
- Potential Auto-Run modes
- Powered by each phase, all interconnected

Summary

The project will contain several elements that can be strung together to make a “Rube-Goldberg Machine”. As our requirements have shown, it will serve the purpose of entertaining and educating throngs of people for many eons to come. The resulting project will yield high quality, thoroughly organized devices which will reflect North Dakota State University’s Electrical Engineering program as best as possible.